

# LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

## Volume 5 | Technical Appendices

CFA18 | Stoneleigh, Kenilworth and Burton Green  
**Construction assessment (SV-003-018)**  
Sound, noise and vibration

November 2013

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Department  
for Transport

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# Appendix SV-003-018

Environmental topic:	Sound, noise and vibration	SV
Appendix name:	Construction assessment	003
Community forum area:	Stoneleigh, Kenilworth and Burton Green	018

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# 1 Introduction

- 1.1.1 The sound, noise and vibration appendices comprise four sections. The first of these is an introduction to the relevant route-wide methodology, assumptions and assessment (Volume 5: Appendix SV-100-000). This relates to the sound, noise and vibration assessment for all community forum areas (CFA).
- 1.1.2 For the Stoneleigh, Kenilworth and Burton Green community forum area (CFA18), the other three sections are as follows:
- baseline sound, noise and vibration (Appendix SV-002-018);
  - construction sound, noise and vibration (Appendix SV-003-018) (this appendix); and
  - operational sound, noise and vibration (Appendix SV-004-018).
- 1.1.3 The outcomes of the assessment are summarised in Volume 2: CFA18 Report, Section 11 Sound, noise and vibration.
- 1.1.4 Maps referred to throughout the sound, noise and vibration appendices are contained in the Volume 5 map book.
- 1.1.5 This appendix presents the likely noise and vibration impacts, effects and significant effects arising from the construction of the Proposed Scheme for the Stoneleigh, Kenilworth and Burton Green area on:
- people, primarily where they live ('residential receptors') in terms a) individual dwellings and b) on a wider community basis, including any shared community open areas; and
  - community facilities such as schools, hospitals, places of worship, and also commercial properties such as offices and hotels, collectively described as 'non-residential receptors' and 'quiet areas'.
- 1.1.6 The assessment of likely impacts, effects and significant effects from construction noise and vibration on agricultural, community, ecological or heritage receptors and the assessment of tranquillity are presented in the following documents within Volume 5:
- Agriculture, forestry and soils                      Appendix AG-001-018;
  - Community    Appendix CM-001-018;
  - Ecology    Appendix EC-005-018;
  - Heritage    Appendix CH-003-018; and
  - Landscape and Visual                                      Appendix LV-001-018.

## 1.2 Evaluation of impacts and effects

- 1.2.1 This appendix provides a quantitative assessment of construction noise and vibration impacts/effects and a qualitative assessment of likely significant effects, based on the

impacts/effects identified and other local context information consistent with the scope and methodology defined for the Proposed Scheme.

- 1.2.2 Indirect effects arising from temporary changes in traffic patterns on the existing road network as a consequence of constructing the Proposed Scheme are also reported in this appendix, where they would occur within the study area as defined in Volume 5: Appendix SV-001-000.
- 1.2.3 In undertaking the assessment of sound and vibration, consistent with Environmental Impact Assessment (EIA) Regulations and emerging National Planning Practice Guidance<sup>1</sup>, a differentiation between impacts effects, adverse effects and significant effects is made. Further information is provided in Volume 5: Appendix SV-001-000.
- 1.2.4 The assessment of impacts and effects has been undertaken at assessment locations that are representative of a number of dwellings or other sensitive receptors. The Assessment Locations employed in this assessment are presented on Map Series Sv-03 in the CFA18 Volume 5 sound, noise and vibration map book.

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<sup>1</sup> Information is provided in the emerging National Planning Practice Guidance – Noise <http://planningguidance.planningportal.gov.uk>, refer to the noise exposure hierarchy.

## 2 Scope, assumptions and limitations

### 2.1 Regional and local policy guidance

2.1.1 The policy framework for sound, noise and vibration is set out in Volume 1 and in Volume 5: Appendix SV-001-000. As part of the engagement with local authorities through the Planning Forum Sub Group – Acoustics, information regarding any specific local planning guidance in respect of noise and vibration has been requested. Whilst no information has been received for this study area via the Planning Forum Sub Group – Acoustics, the following local policy guidance on noise and vibration has been identified:

- The Warwick District Council – Local Plan – 1996 to 2011.

2.1.2 This guidance has been considered as part of formulating the detailed application of the impact and significance criteria set out in Volume 5: Appendix SV-001-000.

### 2.2 Engagement

2.2.1 Details of engagement on a route-wide basis with the local and county authorities' Environmental Health Practitioners via the Planning Forum Sub Group – Acoustics, is set out in Volume 1.

2.2.2 Engagement with communities has been via the Community Forums, as set out in Volume 1. In respect of sound, noise and vibration the following discussions have taken place:

- general discussions in respect of local issues, including possible ways to avoid and mitigate the potential impacts of noise or vibration
- September/October 2012; a specific presentation about sound, noise and vibration with discussion afterwards with one of the project team specialists;
- November/December 2012; specific request for the Community Forum to propose baseline sound monitoring locations;
- January/February 2013; feedback to the Community Forum on any proposed baseline monitoring locations; and
- verbal/written response to questions about sound, noise and vibration.

### 2.3 Methodology

2.3.1 The methodology used for the assessment of airborne sound, ground-borne sound and vibration impacts and the determination of significant effects is defined in the Scope and Methodology Report (SMR) (Volume 5: Appendix CT-001-000/1), is clarified in a number of areas by the SMR addendum (Volume 5: Appendix CT-001-000/2). Further information is contained in Volume 5: Appendix SV-001-000.

### 2.4 Assumptions

2.4.1 Route-wide assumptions are outlined in Volume 1 and are further detailed in Volume 5: Appendix SV-001-000. Local assumptions that apply to the assessment of



construction sound noise and vibration within this CFA are set out in Volume 2: Report 18.

## **2.5**      **Limitations**

- 2.5.1      The route-wide limitations and the approach adopted to assure that they will not impact the robust assessment of sound, noise and vibration are presented in Volume 5: Appendix SV-001-000. In this area, there are a number of locations where the land or property owners did not permit baseline sound level monitoring to be undertaken at their premises. However, sufficient information has been obtained to undertake the assessment. Further information is provided in Volume 5: Appendix SV-002-018.

## 3 Environmental baseline

### 3.1 Existing baseline

- 3.1.1 Baseline sound level data has been collected at locations representative of the airborne sound-sensitive receptors. The existing and future baseline airborne sound levels derived from these measurements are given in Volume 5: Appendix SV-002-018. Details of the baseline data collection and the methodology are given in Volume 5: Appendix SV-001-000 and specifically for this study area in Volume 5: Appendix SV-002-018.

### 3.2 Future baseline

- 3.2.1 The assessment of noise from construction activities assumes a baseline year of 2017 which represents the period immediately prior to the start of the construction period. As a reasonable worst case, it has been assumed that no change in baseline sound levels will occur between the existing baseline (2012/13) and the future baseline year of 2017. The assessment of noise from construction traffic assumes a baseline year of 2021, representative of the middle of the construction period when the construction traffic flows are expected to be at their peak. Further information can be found in the Traffic and Transport assessment (Appendix TT-001-018).

## 4 Effects arising during construction

### 4.1 Introduction

4.1.1 The assessment is reported first for ground-borne sound and vibration and then for airborne sound. Under each of these headings, the results of the quantitative identification of impacts and effects are presented. This is followed by the identification of significant effects and the evidence used to support these conclusions.

4.1.2 The structure of this assessment report is:

- avoidance and mitigation measures;
- quantitative identification of impact and effects:
  - ground-borne sound and vibration;
    - residential;
    - non-residential;
  - airborne sound;
    - residential; and
    - non-residential;
- assessment of impacts and effects:
  - residential receptors: direct effects – dwellings;
  - residential receptors: direct effects – communities;
  - residential receptors: indirect effects;
  - non-residential receptors: direct effects;
  - non-residential receptors: indirect effects; and
  - cumulative effects from the proposed scheme and other committed development.

### 4.2 Avoidance and mitigation measures

4.2.1 These are set out in Volume 2: Report 18.

### 4.3 Quantitative identification of impacts and effects

#### Ground-borne vibration

4.3.1 Assessment locations defined for the quantitative assessment of impacts are shown on map series SV-02 in the CFA18 Volume 5 sound, noise and vibration map book.

4.3.2 For each Assessment Location, the assessment results for residential and non-residential receptors are presented in Table 1. Explanation of the information in Table 1 is provided in Appendix SV-001-000, with the following additional notes:

	Where the significant effect column is highlighted, then a significant effect is identified at the referenced community, or individual receptor.
*	Significant effect – the quantitative impact methodology has identified either: <ul style="list-style-type: none"> <li>1) no impact at this receptor but further information (see assessment) has identified that a significant effect is nonetheless likely; or</li> <li>2) an impact at this receptor which, based upon further qualitative receptor information, (see assessment text) does not give rise to a significant effect</li> </ul>
~	Significant effect – the forecast adverse effects are not considered to be significant on a community basis (further information on methodology is provided in Volume 5: Appendix SV-001-000)
A	Type of effect – adverse effect
S	Type of effect – significant adverse effect
NA	Type of effect – not generally an adverse effect
B	Type of effect – for non-residential receptors further detail about the type of effect is set out in the text of Volume 5: Appendix SV-001-000
V1	Type of receptor – (V1) vibration sensitive research and manufacturing, hospital, and university equipment, (V2) hotels, hospital wards and education dormitories, (V3) offices, schools and places of worship, (V4) workshops
T	Receptor design – typical
S	Receptor design – special

## Appendix SV-003-018 | Effects arising during construction

Table 1: Assessment of construction induced ground-borne vibration at residential receptor

Assessment location		Impact criteria			Construction activity resulting in highest forecast vibration levels	Significance criteria									Significant effect
ID	Area represented	Peak particle velocity (PPV) [mm/s] on foundation	Typical/highest monthly indoor vibration dose value (VDV) [m/s <sup>-1.75</sup> ]			Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
193519	Crackley Lane, Kenilworth	0.24	0.12/0.12	-	Rough Knowles Wood cutting (5 months)	NA	2	R	T	-	-	-	5	-	
202851	Waste Lane, Balsall Common, Coventry	0.36	0.17/0.17	-	Burton Green retaining wall (10 months)	NA	1	R	T	-	-	-	3	-	
202900	Waste Lane, Balsall Common, Coventry	0.15	0.06/0.06	-	Waste Lane cutting (3 months)	NA	1	R	T	-	-	-	3	-	
204079	Hodgetts Lane, Burton Green, Kenilworth	1.21	0.5/0.5	-	Burton Green tunnel (8 months)	A	5	R	T	-	-	Y	8	-	CSV18-Co1
204103	Cromwell Lane, Burton Green, Kenilworth	1.21	0.5/0.5	-	Burton Green tunnel (8 months)	A	2	R	T	-	-	Y	8	-	CSV18-Co1
204138	Cromwell Lane, Burton Green, Kenilworth	0.26	0.07/0.07	-	Burton Green tunnel (8 months)	NA	10	R	T	-	-	-	8	-	
204193	Cromwell Lane, Burton Green, Kenilworth	0.47	0.22/0.22	-	Burton Green tunnel (8 months)	A	1	R	T	-	-	Y	8	-	CSV18-Co1
204223	Cromwell Lane, Burton Green, Kenilworth	0.47	0.11/0.11	-	Burton Green tunnel (8 months)	NA	6	R	T	-	-	-	8	-	
204255	Cromwell Lane, Burton Green, Kenilworth	0.12	0.07/0.07	-	Burton Green tunnel (8 months)	NA	6	R	T	-	-	-	8	-	

Assessment location		Impact criteria				Significance criteria										Significant effect
ID	Area represented	Peak particle velocity (PPV) [mm/s] on foundation	Typical/highest monthly indoor vibration dose value (VDV) [m/s <sup>1.75</sup> ]		Construction activity resulting in highest forecast vibration levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect		
			Day 0700-2300	Night 2300-0700												
204672	Cromwell Lane, Burton Green, Kenilworth	0.12	0.07/0.07	-	Burton Green tunnel (8 months)	NA	10	R	T	-	-	-	8	-		
204916	Hodgetts Lane, Burton Green	0.12	0.07/0.07	-	Burton Green north porous portal (3 months)	NA	4	R	T	-	-	-	3	-		
204998	Hodgetts Lane, Burton Green, Kenilworth	0.72	0.3/0.3	-	Burton Green tunnel (8 months)	A	5	R	T	-	-	Y	8	-	CSV18-Co1	
205051	Hodgetts Lane, Burton Green, Kenilworth	0.17	0.09/0.09	-	Burton Green north porous portal (3 months)	NA	6	R	T	-	-	-	3	-		
205176	Cromwell Lane, Burton Green, Kenilworth	0.13	0.07/0.07	-	Burton Green tunnel (8 months)	NA	10	R	T	-	-	-	8	-		
205188	Hodgetts Lane, Burton Green, Kenilworth	0.24	0.06/0.06	-	Burton Green tunnel (8 months)	NA	8	R	T	-	-	-	8	-		
205259	Hodgetts Lane, Burton Green, Kenilworth	0.72	0.3/0.3	-	Burton Green tunnel (8 months)	A	1	R	T	-	-	Y	8	-	CSV18-Co1	
216902	Leicester Lane, Cubbington, Leamington Spa	0.27	0.13/0.13	-	A445 Leicester Lane overbridge (3 months)	NA	4	R	T	-	-	-	3	-		
217994	National Agricultural Centre, Stoneleigh Park, Kenilworth	0.11	0.03/0.03	-	Stoneleigh Park retaining wall (10 months)	NA	2	R	T	-	-	-	10	-		
219016	National Agricultural Centre, Stoneleigh Park, Kenilworth	0.51	0.23/0.23	-	Stoneleigh Park retaining wall (10 months)	A	2	R	T	-	-	-	10	-		

## Appendix SV-003-018 | Effects arising during construction

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Peak particle velocity (PPV) [mm/s] on foundation	Typical/highest monthly indoor vibration dose value (VDV) [m/s <sup>1.75</sup> ]		Construction activity resulting in highest forecast vibration levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
			Day 0700-2300	Night 2300-0700											
225929	Milburn Grange, Coventry Road, Kenilworth	0.12	0.03/0.03	-	Canley Brook retaining wall (19 months)	NA	1	R	T	-	-	-	19	-	
225955	Millburn Grange, Coventry Road, Kenilworth	0.37	0.07/0.07	-	Kenilworth cutting (2 months)	NA	1	R	T	-	-	-	2	-	
701069	Waste Lane, Balsall Common, Coventry	0.25	0.06/0.06	-	Burton Green retaining wall (10 months)	NA	1	R	T	-	-	-	3	-	
701070	Cromwell Lane, Burton Green	0.42	0.2/0.2	-	Burton Green tunnel (8 months)	NA	3	R	T	-	-	-	8	-	
701072	Leicester Lane, Cubbington, Leamington Spa	0.64	0.23/0.23	-	A445 Leicester Lane overbridge (4 months)	A	1	R	T	-	-	-	4	-	~
701077	National Agricultural Centre, Stoneleigh Park, Kenilworth	0.45	0.21/0.21	-	Stoneleigh Park retaining wall (10 months)	A	1	R	T	-	-	-	10	-	~
701078	National Agricultural Centre, Stoneleigh Park, Kenilworth	0.15	0.07/0.07	-	Stoneleigh Park retaining wall (10 months)	NA	1	R	T	-	-	-	10	-	

Table 2: Assessment of construction induced ground-borne vibration at non-residential receptors

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	PPV [mm/s] on foundation	Typical/highest monthly indoor VDV [m/s <sup>1.75</sup> ]		Construction activity resulting in highest forecast vibration levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
			Day 0700-2300	Night 2300-0700											
218885	National Agricultural Centre, Stoneleigh Park, Kenilworth	0.17	0.04/0.04	-	Stoneleigh Park retaining wall	B	2	V3	T	-	-	-	-	-	
219122	National Agricultural Centre, Stoneleigh Park, Kenilworth	0.22	0.11/0.11	-	Stoneleigh Park retaining wall	B	3	V3	T	-	-	-	-	-	
219394	National Agricultural Centre, Stoneleigh Park, Kenilworth	0.21	0.11/0.11	-	Stoneleigh Park retaining wall	B	1	V3	T	-	-	-	-	-	
225955	Millburn Grange, Coventry Road, Kenilworth	0.13	0.07/0.07	-	Kenilworth cutting	B	1	V3	T	-	-	-	-	-	
226073	Dalehouse Lane, Kenilworth	0.2	0.05/0.05	-	Dalehouse north embankment	B	2	V3	T	-	-	-	-	-	
701069	Waste Lane, Balsall Common, Coventry	0.25	0.06/0.06	-	Waste Lane cutting	B	1	V3	T	-	-	-	-	-	



## Airborne sound: direct impacts and effects

- 4.3.3 Activities associated with the construction phases of the Proposed Scheme would generate airborne noise. The assessment of the likely impacts and significant effects as a result of the construction noise has considered the effects on:
- residential receptors, both as individual dwellings and communities; and
  - non-residential receptors, including quiet areas.
- 4.3.4 For each type of receptor, subject to the screening distances identified, and based upon supplied plant information from engineers, the typical and highest monthly  $L_{Aeq,T}$  noise levels from construction activities have been calculated at all assessment locations, which are representative of a number of receptors in the study area.
- 4.3.5 The assessment results, impact criteria and significance criteria for the assessment of the scheme at residential and non-residential receptors are presented in Table 3 and Table 4 respectively.
- 4.3.6 Explanation of the information within Table 3 and Table 4 is provided in Volume 5: Appendix SV-001-000, with the following additional notes:

	Where the significant effect column is highlighted, then a significant effect is identified at the referenced community, or individual non-residential receptor
*	Significant effect – the quantitative impact methodology has identified either: 1) no impact at this receptor but further information (see assessment) has identified that a significant effect is nonetheless likely; or 2) an impact at this receptor which, based upon further qualitative receptor information, (see assessment text) does not give rise to a significant effect
~	Significant effect – the forecast adverse effects are not considered to be significant on a community basis (further information on methodology is provided in Volume 5: Appendix SV-001-000)
A	Type of effect – adverse effect
S	Type of effect – significant adverse effect
NA	Type of effect – not generally an adverse effect
B	Type of effect – for non-residential receptors further detail about the type of effect is set out in the text of Volume 5: Appendix SV-001-000
R	Type of receptor – residential
G	Type of receptor – (G1) theatres, large auditoria and concert halls, (G2) sound recording and broadcast studios, (G3) places of meeting for religious worship, courts, cinemas, lecture theatres, museums and small auditoria or halls, (G4) schools, colleges, hospitals, hotels and libraries, and (G5) offices and general commercial premises
T	Receptor design – typical
S	Receptor design – special
H	Existing environment – high existing ambient noise levels, day >75dB, evening >65dB or night >55dB $L_{pAeq}$ at the facade
L	Existing environment – low existing ambient noise levels, day ≤45dB, evening ≤45dB or night ≤35dB $L_{pAeq}$ at the facade
NI	Mitigation effect – identified as likely to qualify for noise insulation under the draft CoCP

Table 3: Assessment of construction noise at residential receptors

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L <sub>pAeq</sub> [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-1900	Evening 1900-2300	Night 2300-0700											
192312	Arborfields Close, Kenilworth	58/62 [A]	-	-	Bridge superstructure	NA	6	R	T	-	-	-	-	-	
192456	Laneham Place, Kenilworth	55/59 [B]	-	-	Retaining wall construction	NA	33	R	T	-	-	-	-	-	
193519	Crackley Lane, Kenilworth	64/73 [A]	-	-	Earthworks	A	2	R	T	-	-	-	9	-	~
193528	Crackley Lane, Kenilworth	59/64 [A]	-	-	Earthworks	NA	1	R	T	-	-	-	-	-	
193618	Hollis Lane, Kenilworth	55/61 [A]	-	-	Earthworks	NA	3	R	T	-	-	-	-	-	
196840	Crackley Crescent, Coventry Road, Kenilworth	62/66 [B]	-	-	Road construction	NA	8	R	T	-	-	-	-	-	
196895	Crackley Crescent, Coventry Road, Kenilworth	58/63 [B]	-	-	Retaining wall construction	NA	9	R	T	-	-	-	-	-	
196951	Coventry Road, Kenilworth	57/61 [A]	-	-	Road construction	NA	4	R	T	-	-	-	-	-	
197103	Coventry Road, Kenilworth	48/53 [A]	-	-	Earthworks	NA	13	R	T	-	-	-	-	-	
198730	Cryfield Grange Road, Kenilworth	54/60 [A]	-	-	Footpath construction	NA	1	R	T	-	-	-	-	-	
198773	Cryfield Grange Road, Kenilworth	52/58 [A]	-	-	Viaduct superstructure	NA	2	R	T	-	-	-	-	-	
199042	Redthorne Grove, Kenilworth	56/60 [A]	-	-	Bridge superstructure	NA	5	R	T	-	-	-	-	-	
202746	Waste Lane, Balsall Common, Coventry	54/59 [A]	-	-	Road construction	NA	5	R	T	-	-	-	-	-	
202851	Waste Lane, Balsall Common, Coventry	65/71 [A]	-	-	Retaining wall construction	A	1	R	T	-	-	-	19	-	~

## Appendix SV-003-018 | Effects arising during construction

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L <sub>pAeq</sub> [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-1900	Evening 1900-2300	Night 2300-0700											
202900	Waste Lane, Balsall Common, Coventry	58/62 [A]	-	-	Bridge superstructure	NA	1	R	T	-	-	-	-	-	
202921	Waste Lane, Balsall Common, Coventry	63/70 [C]	-	-	Road construction	NA	4	R	T	-	-	-	-	-	
203166	Waste Lane, Balsall Common, Coventry	55/60 [A]	-	-	Road construction	NA	2	R	T	-	-	-	-	-	
204079	Hodgetts Lane, Burton Green, Kenilworth	64/72 [A]	-	-	Earthworks	A	5	R	T	-	-	Y	11	-	CSV18-Co1
204103	Cromwell Lane, Burton Green, Kenilworth	69/76 [B]	-	-	Earthworks	S	2	R	T	-	-	Y	24	NI	CSV18-Do1
204138	Cromwell Lane, Burton Green, Kenilworth	62/70 [B]	-	-	Utilities Diversion	NA	10	R	T	-	-	-	-	-	
204193	Cromwell Lane, Burton Green, Kenilworth	64/72 [A]	-	-	Earthworks	A	1	R	T	-	-	Y	25	-	CSV18-Co1
204223	Cromwell Lane, Burton Green, Kenilworth	67/74 [B]	-	-	Earthworks	A	6	R	T	-	-	-	11	-	CSV18-Co2
204255	Cromwell Lane, Burton Green, Kenilworth	60/66 [A]	-	-	Earthworks	NA	6	R	T	-	-	-	10	-	CSV18-Co2
204480	Hob Lane, Burton Green, Kenilworth	50/58 [A]	-	-	Porous portal works	NA	2	R	T	-	-	-	-	-	
204647	Red Lane, Burton Green, Kenilworth	57/65 [A]	-	-	Porous portal works	NA	10	R	T	-	-	-	-	-	
204672	Cromwell Lane, Burton Green, Kenilworth	60/67 [A]	-	-	Porous portal works	A	10	R	T	-	-	-	-	-	CSV18-Co2
204827	Waste Lane, Balsall Common, Coventry	52/56 [A]	-	-	Bridge superstructure	NA	8	R	T	-	-	-	3	-	
204847	Waste Lane, Balsall Common, Coventry	60/66 [A]	-	-	Road construction	A	1	R	T	-	-	-	-	-	~
204916	Hodgetts Lane, Burton Green, Kenilworth	65/71 [A]	-	-	Utilities Diversion	A	4	R	T	-	-	-	5	-	CSV18-Co2

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L <sub>pAeq</sub> [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-1900	Evening 1900-2300	Night 2300-0700											
204998	Hodgetts Lane, Burton Green, Kenilworth	64/69 [A]	-	-	Utilities Diversion	A	5	R	T	-	-	Y	19	-	CSV18-Co1
205051	Hodgetts Lane, Burton Green, Kenilworth	63/69 [A]	-	-	Utilities Diversion	A	6	R	T	-	-	-	23	-	CSV18-Co2
205107	Cromwell Lane, Burton Green, Kenilworth	53/58 [A]	-	-	Demolition works	NA	7	R	T	-	-	-	-	-	
205176	Cromwell Lane, Burton Green, Kenilworth	59/75 [B]	-	-	Utilities Diversion	A	10	R	T	-	-	-	1	-	CSV18-Co2
205188	Hodgetts Lane, Burton Green, Kenilworth	58/70 [A]	-	-	Utilities Diversion	A	8	R	T	-	-	-	1	-	CSV18-Co2
205246	Cromwell Lane, Burton Green, Kenilworth	54/62 [A]	-	-	Porous portal works	NA	10	R	T	-	-	-	-	-	
205259	Hodgetts Lane, Burton Green, Kenilworth	65/70 [A]	-	-	Demolition works	A	1	R	T	-	-	Y	25	-	CSV18-Co1
205270	Hodgetts Lane, Berkswell, Coventry	49/53 [A]	-	-	Earthworks	NA	4	R	T	-	-	-	-	-	
205274	Nailcote Lane, Berkswell, Coventry	51/56 [B]	-	-	Retaining wall construction	NA	3	R	T	-	-	-	-	-	
206363	Bockendon Road, Coventry	52/61 [A]	-	-	Porous portal works	NA	3	R	T	-	-	-	-	-	
206392	Red Lane, Burton Green, Kenilworth	57/66 [A]	-	-	Earthworks	A	13	R	T	-	-	-	1	-	CSV18-Co3
206457	Red Lane, Burton Green, Kenilworth	53/61 [A]	-	-	Porous portal works	NA	1	R	T	-	-	-	-	-	
206515	Red Lane, Burton Green, Kenilworth	58/66 [A]	-	-	Earthworks	A	5	R	T	-	-	-	1	-	CSV18-Co3
206561	Red Lane, Burton Green, Kenilworth	55/64 [A]	-	-	Earthworks	NA	5	R	T	-	-	-	-	-	
207990	Cromwell Lane, Burton Green, Kenilworth	50/59 [A]	-	-	Topsoil strip	NA	16	R	T	-	-	-	-	-	
209053	Crackley Lane, Kenilworth	51/60 [A]	-	-	Earthworks	NA	1	R	T	-	-	-	-	-	

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Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L <sub>pAeq</sub> [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-1900	Evening 1900-2300	Night 2300-0700											
216902	Leicester Lane, Cubbington, Leamington Spa	61/70 [C]	-	-	Earthworks	NA	4	R	T	-	-	-	-	-	
217392	Kenilworth Road, Coventry	60/64 [B]	-	-	Road construction	NA	4	R	T	-	-	-	-	-	
217784	Grovehurst Park, Kenilworth	52/59 [A]	-	-	Road construction	NA	12	R	T	-	-	-	-	-	
217994	National Agricultural Centre, Stoneleigh Park, Kenilworth	58/64 [A]	-	-	Retaining wall construction	NA	2	R	T	-	-	-	-	-	
218718	National Agricultural Centre, Stoneleigh Park, Kenilworth	55/61 [A]	-	-	Retaining wall construction	NA	2	R	T	-	-	-	-	-	
219016	National Agricultural Centre, Stoneleigh Park, Kenilworth	73/78 [A]	-	-	Earthworks	S	2	R	T	-	-	Y	40	NI	CSV18-Do2
220383	Leicester Lane, Cubbington, Leamington Spa	58/62 [A]	-	-	Earthworks	NA	0	R	T	-	-	-	-	-	
220450	Leicester Lane, Cubbington, Leamington Spa	60/68 [C]	-	-	Balancing pond Earthworks	NA	0	R	T	-	-	-	-	-	
220606	Stareton, Kenilworth	58/64 [A]	-	-	Road construction	NA	8	R	T	-	-	-	-	-	
221368	Coventry Road, Cubbington, Leamington Spa	53/58 [A]	-	-	Road construction	NA	2	R	T	-	-	-	-	-	
225929	Milburn Grange, Coventry Road, Kenilworth	63/66 [A]	-	-	Haul road construction	A	1	R	T	-	-	-	7	-	~
225955	Coventry Road, Kenilworth	65/70 [A]	-	-	Road construction	A	1	R	T	-	-	-	39	-	~
226073	Dalehouse Lane, Kenilworth	62/68 [A]	-	-	Viaduct superstructure	A	2	G5	T	-	-	-	7	-	~
226171	Inchbrook Road, Kenilworth	56/59 [A]	-	-	Retaining wall construction	NA	7	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L <sub>pAeq</sub> [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-1900	Evening 1900-2300	Night 2300-0700											
228744	Kenilworth Road, Coventry	53/59 [B]	-	-	Retaining wall construction	NA	4	R	T	-	-	-	-	-	
229009	Crew Lane, Kenilworth	52/56 [B]	-	-	Road construction	NA	1	R	T	-	-	-	-	-	
229016	Crew Lane, Kenilworth	56/61 [B]	-	-	Road construction	NA	6	R	T	-	-	-	-	-	
229088	Dalehouse Lane, Kenilworth	64/71 [A]	-	-	Road construction	A	2	R	T	-	-	-	7	-	~
229176	Dalehouse Lane, Kenilworth	62/69 [B]	-	-	Demolition works	NA	3	R	T	-	-	-	-	-	
229212	Dalehouse Lane, Kenilworth	54/61 [B]	-	-	Road construction	NA	2	R	T	-	-	-	-	-	
701069	Waste Lane, Balsall Common, Coventry	67/70 [B]	-	-	Bridge superstructure	NA	1	R	T	-	-	-	-	-	
701070	Cromwell Lane, Burton Green, Kenilworth	66/73 [B]	-	-	Earthworks	A	3	R	T	-	-	-	5	-	CSV18-Co1
701071	Hob Lane, Burton Green, Kenilworth	55/59 [B]	-	-	Demolition works	NA	0	R	T	-	-	-	-	-	
701077	Stoneleigh Park, Kenilworth	69/74 [A]	-	-	Retaining wall construction	A	1	R	T	-	-	-	23	-	~
701078	Stoneleigh Park, Kenilworth	60/65 [A]	-	-	Retaining wall construction	NA	1	R	T	-	-	-	-	-	
711043	Stoneleigh Park, Kenilworth	69/74 [A]	-	-	Retaining wall construction	A	1	R	T	-	-	-	23	-	~
721017	Leicester Lane, Cubbington, Leamington Spa	66/72 [C]	-	-	Earthworks	NA	4	R	T	-	-	-	-	-	

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Table 4: Assessment of construction noise at non-residential receptors

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L <sub>pAeq</sub> [dB] at the facade			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration	Mitigation effect	
		Day 0700-1900	Evening 1900-2300/Weekend	Night 2300-0700											
192269	Crackley Hall School, Coventry Road	45/48	-	-	Bridge superstructure	B	1	G4	T	-	-	-	-	-	
192623	General Commercial, Red Lane, Burton Green, Kenilworth	50/59	-	-	Earthworks	B	1	G5	T	-	-	-	-	-	
196951	General Commercial, Crackley Crescent, Coventry Road, Kenilworth	57/61	-	-	Road construction	B	1	G5	T	-	-	-	-	-	
198215	Kenilworth Tennis and Squash Club, Crackley Lane	48/53	-	-	Retaining wall construction	B	1	G5	T	-	-	-	-	-	
204480	Local Government Office, Hob Lane, Burton Green, Kenilworth	50/58	-	-	Porous portal works	B	1	G5	T	-	-	-	-	-	
206065	General Commercial, Nailcote Lane, Berkswell, Coventry	47/51	-	-	Retaining wall construction	B	1	G5	T	-	-	-	-	-	
206156	Nailcote Hall Hotel, Nailcote Lane	46/50	-	-	Demolition works	B	1	G4	T	-	-	-	-	-	
206371	General Commercial, Crackley Lane	49/57	-	-	Earthworks	B	1	G4	T	-	-	-	-	-	
206392	Two Oaks Day Nursery, Red Lane, Burton Green	57/66 [A]	-	-	Earthworks	A	13	G4	T	-	-	-	2	-	CSV18-No1
207393	General Commercial, Cromwell Lane, Burton Green, Kenilworth	48/53	-	-	Retaining wall construction, PRoW superstructure	B	1	G5	T	-	-	-	-	-	
218196	General Commercial, National Agricultural Centre, Stoneleigh Park, Kenilworth	58/63	-	-	Retaining wall construction	B	26	G5	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L <sub>pAeq</sub> [dB] at the facade			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration	Mitigation effect	
		Day 0700-1900	Evening 1900-2300/Weekend	Night 2300-0700											
218483	Wren Day Nursery, National Agricultural Centre	48/53	-	-	Demolition works	B	3	G4	T	-	-	-	-	-	
218718	Office, National Agricultural Centre, Stoneleigh Park, Kenilworth	55/61	-	-	Retaining wall construction	B	25	G5	T	-	-	-	-	-	
218885	General Commercial, National Agricultural Centre, Stoneleigh Park, Kenilworth	65/72	-	-	Retaining wall construction	B	2	G5	T	L	-	-	7	-	CSV18-No2
219122	Office, National Agricultural Centre, Stoneleigh Park, Kenilworth	66/72	-	-	Retaining wall construction	B	3	G5	T	L	-	-	12	-	CSV18-No3
219394	Ambulance Station, National Agricultural Centre, Stoneleigh Park, Kenilworth	64/69	-	-	Earthworks	B	1	G4	T	-	-	-	42	-	CSV18-No4
219942	Stoneleigh Village Hall, Birmingham Road	43/47	-	-	Road construction	B	1	G3	T	-	-	-	-	-	
220714	General Commercial, Abbey Park, Stareton, Kenilworth	52/58	-	-	Retaining wall construction	B	12	G5	T	-	-	-	-	-	
221156	St Mary the Virgin, Church Lane, Stoneleigh	47/51	-	-	Demolition works	B	1	G3	T	-	-	-	-	-	
222401	General Commercial, Common Lane, Kenilworth	45/48	-	-	Viaduct superstructure	B	2	G5	T	-	-	-	-	-	
223467	General Commercial, Cotton Drive, Kenilworth	46/50	-	-	Retaining wall construction	B	6	G5	T	-	-	-	-	-	
223712	Office, Clifden Grove, Kenilworth	45/49	-	-	Retaining wall construction	B	1	G5	T	-	-	-	-	-	



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Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L <sub>pAeq</sub> [dB] at the facade			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration	Mitigation effect	
		Day 0700-1900	Evening 1900-2300/Weekend	Night 2300-0700											
225955	Railway Cuttings Milburn Grange, Coventry Road	65/70	-	-	Road construction	B	1	G5	T	-	-	-	-	-	
226073	General Commercial, Dalehouse Lane, Kenilworth	62/68	-	-	Viaduct superstructure	B	2	G5	T	-	-	-	-	-	
226786	General Commercial, Inchbrook Road, Kenilworth	48/52	-	-	Road construction	B	7	G5	T	-	-	-	-	-	
226941	General Commercial, Inchbrook Road, Kenilworth	48/51	-	-	Retaining wall construction	B	5	G5	T	-	-	-	-	-	
227277	General Commercial, Common Lane Industrial Estate, Kenilworth	48/51	-	-	Earthworks	B	1	G5	T	-	-	-	-	-	
228816	Chapel, Stoneleigh Abbey, Kenilworth	45/49	-	-	Demolition works	B	1	G3	T	-	-	-	-	-	
229071	General Commercial, Stoneleigh Road	47/54	-	-	Road construction	B	4	G4	T	-	-	-	-	-	
700638	General Commercial, Coventry Road, Crackley	51/56	-	-	Footpath construction	B	14	G5	T	-	-	-	-	-	
700639	General Commercial, Coventry Road, Crackley	47/52	-	-	Retaining wall construction	B	17	G5	T	-	-	-	-	-	
701069	General Commercial, Waste Lane, Balsall Common, Coventry	67/70	-	-	Bridge superstructure	B	1	G5	T	-	-	-	-	-	
701080	Club, Vicarage Road, Stoneleigh, Coventry	36/40	-	-	Bridge superstructure	B	1	G5	T	-	-	-	-	-	

## Airborne sound: Indirect noise effects

- 4.3.7 Construction road traffic associated with the construction phases of the Proposed Scheme would generate airborne noise. Based upon traffic information for the Proposed Scheme, the change in traffic noise level at a reference distance of 10m from the edge of the nearside carriageway resulting from the presence of construction traffic for a given road has been predicted. The results for potentially significant road links are presented in Table 5.
- 4.3.8 Explanation of the information within Table 5 is provided in Volume 5: Appendix SV-001-000, with the following additional notes:

Where the significant effect column is highlighted, then a significant effect is identified on nearby communities or individual receptors

### Change values

Yellow denotes a minor impact – a change is of 3-5dB or 1-3dB where a high existing sound level is identified  
 Orange denotes a moderate impact – a change is of 5-10dB or 3-5dB where a high existing sound level is identified  
 Red denotes a major impact – a change is of >10dB or >5dB where a high existing sound level is identified

Table 5: Assessment of construction traffic noise levels

Road name	Link	Future baseline sound level (dB)	Future baseline sound level + construction traffic (dB)	Change (dB)	Significant effect
		Daytime L <sub>pA10,16hr 0700-23:00</sub>	Daytime L <sub>pA10,16hr 0700-23:00</sub>		
A445 Leicester Lane	Kenilworth Road to the A445 Leicester Lane compound	69.0	69.1	+0.1	
B4113 Stoneleigh Road	Westhill Road to the Stoneleigh Park retaining wall/Stoneleigh Road compound	67.5	68.0	+0.5	
A46	A452 Leamington Road to the Stoneleigh road	80.8	81.3	+0.5	
Dalehouse Lane	Stoneleigh Road to the Finham Brook viaduct compound	66.6	66.8	+0.2	
Stoneleigh Road	Dalehouse lane to A429 Kenilworth Road	71.6	71.8	+0.2	
A429 Kenilworth Road	Coventry Leamington Spa railway overbridge compound to Stoneleigh Road	68.3	71.1	+2.8	
A429 Kenilworth Road	Stoneleigh Road to A45 Kenpas Highway	70.1	72.0	+1.9	
Hob Lane	Windmill Lane to Red Lane	62.6	63.2	+0.6	
B4101 Waste Lane	Hodgett's Lane to Windmill Lane/Kelsey Lane junction	65.5	67.8	+2.3	CSV18-Co4

## 4.4 Assessment of significant effects

### Residential receptors: direct effects – individual dwellings

- 4.4.1 Taking account of the avoidance and mitigation measures set out in Volume 2: Report 18, four residential buildings (2 dwellings along Hodgett's Lane whose rear facades faces onto the Kenilworth Greenway and 2 dwellings located at eastern boundary of Stoneleigh Park adjacent to Stoneleigh Road) are forecast to experience noise levels higher than the noise insulation trigger levels as defined in the draft CoCP. For daytime construction the trigger level is an equivalent continuous noise level of 75dB<sup>2</sup> measured outdoors.
- 4.4.2 The mitigation measures, including noise insulation, will reduce noise inside all dwellings, such that it does not reach a level where it would significantly affect residents<sup>3</sup>.

### Residential receptors: direct effects – communities

- 4.4.3 The avoidance and mitigation measures in this area will avoid airborne construction noise adverse effects on the majority of receptors and communities. Residual temporary noise or vibration effects are identified later in this section.
- 4.4.4 It is anticipated that there may be some night-time working during road and rail possession periods. Night-time construction activities in this area would be restricted to where the route crosses existing railway lines, roads or where newly constructed roads tie into the existing road network for reasons of safety, engineering practicability or to reduce the impact on existing transport. These works are likely to be of short duration, and be limited in the types of activities being undertaken. As a consequence, it is expected that the noise effects from night time activities would be limited in duration and hence would not be considered significant.
- 4.4.5 With regard to noise outside dwellings, the assessment of temporary effects takes account of construction noise relative to existing sound levels.
- 4.4.6 In locations with lower existing sound levels, construction noise effects<sup>1</sup> are likely to be caused by changes to noise levels outside dwellings. These may be considered by the local community as an effect on the acoustic character of the area and hence be perceived as a change in the quality of life. These effects are considered to be significant when assessed on a community basis taking account of the local context<sup>3</sup>.
- 4.4.7 The direct adverse construction noise effects<sup>1</sup> on the areas of the residential communities identified in Table 6 are considered to be significant.
- 4.4.8 Table 6 presents a summary of the likely residual significant direct effects on residential communities. The typical and worst-case construction noise levels are reported to the nearest 5dB. The number of dwellings in each community has also been rounded to the nearest 5-10 properties

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<sup>2</sup> L<sub>pAeq,0800-1800</sub> measured at the facade

<sup>3</sup> Further information is provided in Volume 5: Appendix SV-001-000.

Table 6: Construction noise and vibration adverse effects that are considered significant on communities and shared open areas

Significant effect number	Type of significant effect	Time of day	Location	Cause (construction activities)	Assumed duration of impact
CSV18-Co1	Combined construction noise and groundborne vibration	Day	Approximately 15 dwellings on both Hodgett's Lane and Cromwell Lane, Burton Green	Demolition activities, ground engineering works associated with the Burton Green cut and cover tunnel and utility diversions with typical and highest monthly noise levels of 65dB to 70dB <sup>4</sup> and typical and highest monthly vibration levels of between 0.22m/s1.75 and 0.5 m/s1.75	1 month, 16months and 6 months
CSV18-Co2	Construction noise	Day	Approximately 40 dwellings on both Hodgett's Lane and Cromwell Lane, Burton Green	Demolition activities, ground engineering works associated with the Burton Green cut and cover tunnel and a utility diversion with typical and highest monthly noise levels ranging from 60dB to 65dB <sup>4</sup> and 65dB to 75dB <sup>4</sup> respectively	1 month, 16months and 6 months
CSV18-Co3	Construction noise	Day	Approximately 20 dwellings on Red Lane, Burton Green	Earthworks associated with the Brockenden cutting landscaping with typical and highest monthly noise levels of 55dB and 65dB <sup>4</sup>	1 month

### Residential receptors: indirect effects

- 4.4.9 Construction traffic is likely to cause adverse noise effects at approximately 20 dwellings on Waste Lane located immediately adjacent to the road (CSV18-Co4). Properties are forecast to experience an increase in outdoor noise levels of around 2.3dB during the peak months (further information is provided in Section 12 of Volume 2: Traffic and Transport).
- 4.4.10 This adverse effect would be a change in the acoustic character of the area such that there is a perceived change in the quality of life and is considered significant when assessed on a community basis taking account of the local context.
- 4.4.11 A minor impact, due to construction traffic, is predicted along the A429 Kenilworth Road Taking account of incorporated mitigation, the limited number of properties adjacent to this road and the predicted change in traffic noise levels; no indirect construction noise significant effects have been identified.
- 4.4.12 In certain instances a qualitative assessment has been undertaken. This was the case for assessment of noise due to construction traffic along Bericote Road, the A45 Stonebridge Highway, the A45 Kenpas Highway, the A45 Fletchamstead Highway and the A45 Dunchurch Highway.
- 4.4.13 On Bericote Road construction vehicles numbers are assumed to be similar to those travelling on the B4113 Stoneleigh Road for which an increase of 0.5dB is predicted. As a consequence, no significant temporary effect is considered likely
- 4.4.14 Along the A45 (Stonebridge Highway, Kenpass Highway, Fletchamstead Highway and Dunchurch Highway) existing traffic flows on the construction traffic route have been assumed to be similar to those of the A46. Construction traffic flows have also been

<sup>4</sup> Equivalent continuous sound level at the facade, L<sub>pAeq, 0700-1900</sub>.

assumed to be comparable to those on the A46. The qualitative assessment has therefore concluded that the impact would be <1dB, hence no significant temporary noise effect is considered likely.

### **Non-residential receptors: direct effects**

4.4.15 Significant construction noise or vibration effects have been identified on a worst-case basis on the following non-residential receptors, the typical and worst-case noise levels are reported to the nearest 5dB:

- a significant construction noise effect has been identified on the Two Oaks Day Nursery (CSV18-No1). Located on Red Lane on the eastern edge of Burton Green, Two Oaks Day Nursery is a private nursery providing full day care services to children from birth to eight years of age between 08:30 and 17:30. The nursery operates from a two storey brick built building with openable windows and a pitched tiled roof. All children have access to a secure garden with paved and covered play areas. All buildings have windows with openable casements and it is assumed that ventilation is provided by the opening of windows. Noise levels, at the building facade closest to the construction activities, exceed the daytime criteria by up to 6dB for a total of 2 months commencing in 2019, due to earthworks associated with the Brockenden cutting. All reasonably practicable measures to further reduce or avoid a significant effect during construction will be undertaken.
- a significant construction noise effect has been identified on office space, commercial properties and an ambulance station located on the north eastern boundary of Stoneleigh Park (CSV18-No1, CSV18-No2 and CSV18-No3) and in close proximity to the construction works. A significant noise effect has been identified on a reasonably foreseeable worst-case basis during the daytime over a period of 7, 12 and 42 months respectively commencing in 2018, reaching a maximum of 70dB, due to ground engineering construction activities associated with Stoneleigh Park retaining wall.

### **Non-residential receptors: indirect effects**

4.4.16 Significant noise effects on non-residential receptors arising from construction traffic are unlikely to occur in this area.

### **Cumulative effects from the Proposed Scheme and other committed development.**

4.4.17 This assessment has considered the potential cumulative construction noise effects of the proposed scheme and other committed developments<sup>5</sup>. In this area, there is no committed development that would be built at the same time as the Proposed Scheme and accordingly, construction noise or vibration from the Proposed Scheme is unlikely to result in any significant cumulative noise effects.

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<sup>5</sup> Refer to Volume 5: Appendix CT-004-000

## 5 References

*Control of Pollution Act 1974* (c.40). London, Her Majesty's Stationery Office.

*Environmental Protection Act 1990*. London, Her Majesty's Stationery Office.